

# Mass Casualty Incident (MCI) Response Module 1



(Hamilton County Fire Chief's Association, 2013)

# Objectives

## Purpose:

This module will educate staff on mass casualty triage incident response, including how to:

- Define mass casualty triage
- Determine considerations for adults and pediatrics
- Understand the importance of a patient tracking system
- Recognize and implement the patient admission/discharge MCI triage process
- Determine how to appropriately handle the deceased in a large-scale MCI
- Recognize the range of incidents that may cause MCIs

# MCI Basics

# What is an MCI?

- A mass casualty incident (MCI) is an incident where the number of patients exceeds the amount of healthcare resources available.
- This number varies widely across the country, but is typically greater than 10 patients.

# Types of MCI Notifications

- During a large scale incident such as a mass casualty, it is important to have a mass notification system. Successful mass notification systems will:
  - Internally: alert staff to activate MCI protocols and prepare for a potential surge of patients
  - Externally: increase community awareness

# Assisting in MCI Response

## Considerations for hospital staff in an MCI:

- Some patients may arrive to the hospital without having been assessed/ triaged at the scene
- MCI response requires efficiency and coordination
- Non-clinical personnel (including hospital volunteers) can assist in moving patients to designated areas based on level of care
- Help gather patient information in the emergency treatment area
- Staff should review patients in clinical assignment for any potential discharges/ transfers to make room for potential MCI admissions, a process known as “surge discharge”

# Triage Basics

# Definition of MCI Triage

Triage means “to sort.”

Triage in an MCI is the assignment of resources based on the initial patient assessment and consideration of available resources.





# MCI Triage

- MCI triage differs from day-to-day triage due to potential resource limitations.
- Evidence based triage systems have been developed using these documented triage basics:
  - Triage prioritizes identification of those in need of immediate intervention.
  - Triage must be modified for children.
  - “Triage requires situational awareness, decisiveness, and clinical expertise.”
  - Ethical justifications need to be made in order to save large numbers instead of caring for each individual need.
- No-notice, dynamic incident scenes with exceedingly large numbers of patients may result in altered triage processes.

# Question 1:

Select the correct multiple choice statement.

As a clinician in a patient care unit during an MCI it is important that I:

- A. Take a lunch soon because I may not get one
- B. Review all my patients to determine who may go home or be transferred
- C. Do nothing at this time

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- A. Take a lunch soon because I may not get one
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- C. Do nothing at this time

The correct answer is B.

## Question 2:

Select the correct multiple choice statement.

Mass Casualty Triage is:

- A. The assignment of response priority based on level of injury and available resources
- B. Deciding who gets to take a break first
- C. Determining what patient gets admitted first

## Question 2:

Select the correct multiple choice statement.

Mass Casualty Triage is:

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- B. Deciding who gets to take a break first
- C. Determining what patient gets admitted first

The correct answer is A.

# Triage and Assessment Tools

# Typical Mass Casualty Triage Categories

## **MINIMAL**

Sick or injured, but expected to survive with or without care, sometimes referred to as “walking wounded”.

## **DELAYED**

Requires care that can be safely delayed without affecting probability of survival.

## **IMMEDIATE**

Requires immediate care for a good probability of survival.

## **EXPECTANT**

Alive, but with little or no chance of survival given current available resources.

## **DECEASED**

A fatality with no intrinsic respiratory drive and no other signs of life.

# Examples of Common Traumatic Injuries per Triage Category

## Minimal

- Superficial wounds
- Auditory blast injury

## Delayed

- Stable abdominal wounds
- Soft tissue wounds

## Immediate

- Mechanical airway obstruction
- Sucking chest wounds

## Expectant

- Agonal respirations
- Profound shock



# Evidence-Based Triage and Assessment Tools

- START<sup>®</sup>: Simple Triage and Rapid Treatment
  - The START Triage System is intended for adults, but may also be used for older children.
- JumpSTART<sup>®</sup> (Specific to pediatrics)
  - Pediatric Mass Casualty Incident (MCI) Triage Tool
- SALT Triage MCI Tool
  - Sort, assess, life-saving care, treatment/transport
- AVPU Assessment Tool
  - Alert, Voice, Pain, Unresponsive

# START<sup>©</sup> Simple Triage and Rapid Treatment

The **START** Triage System is intended for adults, but may also be used for older children.

One of the most widely recognized MCI triage systems in the United States is the **START<sup>©</sup>** Triage System

## MINIMAL

- Casualties with minor injuries and are expected to survive even if they do not receive immediate medical attention. These groups have the highest likelihood of survival and ranked lowest on the priority of care list.

## DELAYED

- Casualties requiring medical attention for survival, but their condition is less time sensitive than the immediate group, can include some delay, yet necessary care without significant morbidities.

## IMMEDIATE

- Casualties classified as the highest priority and need quick medical attention. This group has life-threatening injuries that require immediate care for survival. If immediate medical attention is given, they will likely survive. If delayed, the likelihood decreases.

**\*\*For all IMMEDIATE victims, the triage officer on scene must also make efforts to control bleeding before proceeding\*\***

# **START<sup>©</sup>: Simple Triage and Rapid Treatment**

## **(continued)**

### **EXPECTANT**

- Casualties considered to have a low likelihood of survival based on the accessible resources on scene.

### **DECEASED**

- Casualties showing no signs of life. Attempt basic life-sustaining interventions, but only if sufficient personnel are available because of the low likelihood of resuscitation. Responders should not stop caring for other casualties with a higher chance of survival.

**\*\*All patients tagged EXPECTANT or DECEASED, unless clearly suffering from injuries, should be reassessed once critical interventions for IMMEDIATE and DELAYED victims are completed\*\***

# SALT MCI Triage Tool

Used primarily on scene

**Sort** - Sort based on whether victim can walk, wave, or is still

**Assess** – Complete an individual assessment to determine need for any lifesaving interventions

**Lifesaving interventions** – Control hemorrhage, open airway, etc. and follow algorithm

**Treatment and/ or transport**

# Triage Considerations

- There are three types of triage:
  - Primary
    - Performed at the first encounter with the patient.
    - May be done by EMS, first responders, or hospital staff.
  - Secondary
    - Reevaluation of primary triage after additional assessment and/or interventions.
    - Often used at the hospital to prioritize patients for operative care or advanced studies, but should be conducted on the scene, if transport is delayed.
  - Tertiary
    - Performed during ongoing definitive care.
- Patients may arrive on foot or via non-EMS transport and require primary triage at the hospital.

# Triage Considerations

- As additional resources become available, patient status should be continually reassessed.
- If sufficient transportation resources are available, transport should not be delayed to conduct triage.
- If sufficient patient care resources are available at the hospital, care should not be delayed to conduct a formal triage.
- An MCI in the field, may not be an MCI at the hospital – MCI is determined by available resources to handle the number of patients at a given location.

# Pediatric Triage Considerations

- Children are different!
- Considerations during pediatric triage include:
  - Anatomic Differences: Size/Structure
  - Physiologic Differences
  - Immunologic Differences: Immature immune systems
  - Developmental Differences
  - Psychological Differences
- Children should be reassessed frequently for changes in condition.



# Pediatric Triage Considerations (continued)

- Pediatric MCI Triage recommendations:
  - Acknowledge that children have unique needs and may require a referral
  - Increase education and training for responders
  - Group children together in the appropriate triage areas
  - Know what organizations are available to care for critically ill pediatric patients if needed



# Pediatric Triage Considerations (continued)

Exposure to disasters can effect children in three categories: direct, interpersonal, or indirect.

- Direct
  - Children who are physically present during an incident are directly affected
- Interpersonal
  - Occurs when children have loved ones that are directly affected
- Indirect
  - Exposure happens through secondary consequences of a large-scale incident, such as chaos/ disruption of daily living
  - Children who are a distance away from the incident may still be affected, causing fear and distress

# JumpSTART<sup>©</sup> Triage System for Children

- Expect children to be a part of an MCI.
- JumpSTART<sup>©</sup> is a modified triage tool based on the START<sup>©</sup> triage model, focusing on the pediatric population.
- This triage tool is designed for children 1-8 years old.  
“Although the JumpSTART<sup>©</sup> system parallels the START<sup>©</sup> system, it takes into consideration the developmental and physiological differences of children by using breathing as the cornerstone for triage decisions” (NDLSF, 2012)
- Some modifications include:
  - Rapid AVPU assessment for pediatric behavior instead of adult behavior
  - Babies <12 months old are marked **IMMEDIATE** for highest priority of care

# JumpSTART<sup>©</sup>

## Pediatric Mass Casualty Incident (MCI) Triage Tool

### MINIMAL

- All victims who are considered “walking wounded” are directed to the minimal injuries treatment area

### DELAYED

- If the victim can follow simple commands when undergoing a mental assessment, or has bleeding that can be stopped, they are directed to the delayed treatment area

### IMMEDIATE

- If the victim cannot follow simple commands when undergoing a mental assessment, if bleeding cannot be stopped, the respiratory rate is under 15 or over 45, or there is no peripheral pulse

### EXPECTANT

- All victims struggling with injuries incompatible with life

### DECEASED

- All victims displaying no signs or symptoms of life

**\*\*All patients tagged EXPECTANT or DECEASED, unless clearly suffering from injuries, should be reassessed once critical interventions for IMMEDIATE and DELAYED victims are completed.\*\***

# Question 3:

There are several considerations when triaging pediatric patients.

Choose from the following answers that reflect those considerations:

- A. Understand that pediatric patients have unique needs
- B. It would be important to educate pre-hospital and hospital staff on the special needs of children
- C. Pediatric patients should be grouped together within appropriate triage areas
- D. Both A and B
- E. All of the above

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The correct answer is E.

## Question 4:

True or False?

Once a victim is assessed, their triage status stays the same throughout the entire length of care.

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The correct answer is **FALSE**.

## Question 5:

12 victims are initially assessed by EMS, at the scene of an emergency, and transported to the hospital.

This represents which type of triage?

- A. Primary
- B. Secondary
- C. Tertiary



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This represents which type of triage?

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B. Secondary

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The correct answer is A.

## Question 6:

You are assigned to reassess an eight year old boy in the emergency department, who was triaged **MINIMAL** on scene.

You were told that the boy was responsive to commands on scene, yet has become unresponsive following transport.

In your evaluation of the eight year old boy, you should:

- A. Agree with the on scene decision and keep the triage level as **MINIMAL**
- B. Change his triage level to needing **IMMEDIATE** care
- C. Change his triage level to **DELAYED**

## Question 6:

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- B. Change his triage level to needing **IMMEDIATE** care
- C. Change his triage level to **DELAYED**

The correct answer is B.

# Patient Identification, Tracking, and Fatality Management

# Patient Identification

- Identification is essential in treating, tracking, and maintaining continuity of care and family reunification
- Hospitals must have a process to identify and track patients that works within their existing patient records system, which may or may not include the use of triage tags
- Know the system your hospital uses

# Handling the Deceased

- Proper handling considerations during a large-scale incident:
  - Recommended use of personal protective equipment (PPE)
  - Local law enforcement may provide guidelines on handling of the deceased and their belongings to preserve evidence
  - Bodies can only be released by responsible authority according to existing laws and policies
  - Mismanagement of deceased can lead to legal implications
  - Cultural practices related to the deceased should be respected to the degree possible
  - Engage proactively and creatively with media to maintain family privacy

## Question 7:

Select the correct multiple choice statement.

Labeling all patients with a triage tag provides:

- A. Color coding for treatment priority
- B. Pre-existing conditions
- C. Allergies
- D. Triage tag numbers for reference and patient tracking
- E. A & D
- F. All of the above
- G. B & D

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- E. A & D
- F. All of the above
- G. B & D

The correct answer is E.



## Question 8:

Select the correct multiple choice statement.

Some of the reasons patient tracking and identification is important is:

- A. People respond better to their own name instead of a number
- B. Family reunification
- C. Patient accountability – to ensure all surviving casualties have been transported from the scene to a treatment destination
- D. All of the above
- E. A and C

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- D. All of the above
- E. A and C

The correct answer is D.

# Chemical, Biological, Radiological, Nuclear, and Explosive Events (CBRNE) Special Considerations



# CBRNE

- CBRNE stands for chemical, biological, radiological, nuclear and explosive events.
- Affect human health in multiple ways.
- It is important to have access to information on common CBRNE agents and their treatments or countermeasures.
- It is important to understand your facilities' available personal protective equipment and policies for handling and decontaminating patients.

# CBRNE Exposure

Look for obvious indicators and other warning signs for CBRNE exposure, including:

- Debris field
- Mass casualty incident
- Numerous patients exhibiting similar signs and symptoms
- Responder casualties
- Severe structural damage
- Dead animals and plant life
- System disruptions (utilities, transportation, etc.)
- Unusual odors, color of smoke, vapor clouds

(FEMA, 2003; NATO, 2014)

# Question 9:

What does CBRNE stand for?

Select the correct multiple choice answer.

- A. Chemical, biological, radiological, nuclear, explosive
- B. Chemical, biochemical, radioactive, nuclear, explosive
- C. Chemical, biological, radiological, nuclear, extensive
- D. Chemical, biochemical, radiological, natural, explosive

# Question 9:

What does CBRNE stand for?

Select the correct multiple choice answer.

- A. Chemical, biological, radiological, nuclear, explosive
- B. Chemical, biochemical, radioactive, nuclear, explosive
- C. Chemical, biological, radiological, nuclear, extensive
- D. Chemical, biochemical, radiological, natural, explosive

The correct answer is A.

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